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ABSTRACT

This paper deals with the relation between etymolo,ically related words in different languages. A survey is made of seven stages in the development of contrastive lexicology. These are: prelinguistic word studies, semantics, lexicography, translation, foreign language learning, bilingualism, and finally contrastive analysis. Concerning contrastive analysis, the following problems are discussed: thesauri of entire vocabularies; classification of lexical hierarchies; taxonomic structure of specialized terminology; and lexico-semantic relationships. By way of conclusion, practical implications of contrastive analysis are discussed. (AM)

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CONTRASTIVE LEXICOLOGY

1 Introduction

This paper is concerned with the question of how closely bits of vocabulary from one language match bits of vocabulary from another language. One aspect of this problem is the familiar phenomenon of FALSE FRIENDS or problem pairs in translation and foreign language teaching; for instance, are English cook and German kochen, which are etymological doublets, also functionally equivalent?

Contrastive lexical analysis may be considered one of the topics par excellence of applied linguistics, yet it has so far not received the attention it deserves. CONTRASTIVE LEXICOLOGY is what I call it; other labels that have been used in the literature are 'comparative semantics' (Hatzfeld 1923/1928, Reifler 1954), 'comparative synonymics' (Collinson 1939), 'lexical/semantic comparison' (Fried 1967), 'differential lexicology' (Mackey 1965), 'lexical contrastive analysis' (Hadlich 1965, Berndt 1969), 'semantic/lexical interference' (Nemser-Vincenz 1972). The vantage-point varies, depending on whether the aim is to enlighten semantics, translation, lexicography, bilingualism, or foreign language teaching. But inherent in all these approaches is the belief that lexical patterns can be studied synchronically and descriptively by assessing the similarities and differences in the structure of the vocabulary of two or more languages.

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2 General linguistics and semantics

First I shall attempt a brief survey of the various groups of studies that have shed some light on our topic. This is largely an account of how the analysis of 'words' and their 'meanings' (in isolation and in context) has emancipated itself from non-linguistic and extra-linguistic fields and gradually come to be integrated into the discipline of linguistics. We can distinguish 6 or 7 phases, stages or branches in this development: pre-linguistic word studies (cf. Section 2.1 below), semantics (↘2.2-2.7), lexicography (↘3.1-3.2), translation (↘3.3), foreign language learning (↘3.4), bilingualism (↘3.5), and contrastive analysis (↘4.1-4.4).

2.1 Pre-linguistic word studies

By PRE-LINGUISTIC WORD STUDIES I refer to those views of language which contributed to the development of an autonomous field of linguistics, but often lacked the theoretical and methodological apparatus to make their observations generalisable, such as etymology, regional dialectology, the 'Wörter-und-Sachen' movement, philosophy of language, psychology of language, ethnology of language. Of these, the most important from our point of view is anthropology, which has given us the notion of 'linguistic relativity' in the form of Humboldt's 'innere Sprachform' and the so-called 'Sapir-Whorf hypothesis' (cf. Carroll's discussion of these in relation to foreign language teaching, 1963). But before these notions and their complementary by-products could become integrated into the mainstream of linguistics, semantics had to evolve first out of the historical-diachronic epoch.

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2.2 Comparative semantics

This is the 'vergleichende Bedeutungslehre' of continental European scholars like Erdmann, Hatzfeld, Sperber, Marty and Stern, who traced the semantic changes of individual words in one or several languages and tried to find the reasons for these changes. Under the label of 'onomasiology' the results of such research have been codified by Kronasser (1952/1968) for German and Koziol (1967) for English.

A useful comparative lexicon, giving etymologies and semantic divergences of the principal Indo-European languages is Buck (1949). But for the contrastive perspective we need not just a complete documentation of how individual words have come to mean what they do (as Benveniste (1969) has demonstrated in his 2-volume work on Le vocabulaire des institutions indo-européennes), but how they operate within the semantic and syntactic systems of each language.

2.3 Lexical field theory

That is of course what 'structural semantics' is trying to do. The first important step in this direction was the theory of the LEXICAL FIELD which is usually attributed to Jost Trier and his research into the terms of 'mental skills' (published in 1931) from the beginnings of German literature to the 13th century. It breaks with the tradition of tracing single words and instead claims that the semantic value of a word (such as weise, klug, gescheit) cannot be determined in isolation, but only from its relative position vis-à-vis the other members of a field, like the interlocking particles of a mosaic. We cannot go into details about Trier's predecessors,

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followers, and critics (cf. the bibliography by Gipper & Schwarz 1962 ff.), but we must acknowledge his impact on linguistic semantics and contrastive lexicology (↘ 2.5, 3.3, 4). Another study which was published in the same year as Trier's did not get quite as much coverage in the literature: Collitz's monograph on the 'verbs of motion' in English, grouped into the three semantic classes of 'emotion', 'propriety' and 'intellectuality'. These earlier studies seemed to make it possible for the first time to systematically relate the expression plane of words ('morphological' and 'syntactic fields') to the content plane of ideas ('semantic' and 'conceptual fields').

2.4 Componential analysis

It took some time for the theory of the lexical field to mature in Europe after World War I. Meanwhile in America, where descriptive linguistics had often been linked with anthropological studies, the view had emerged that words referring to clearly definable DOMAINS of human culture, such as kinship relationships, could be distinguished from one another by means of COMPONENTIAL ANALYSIS. A number of such fields or domains have been investigated, with particular attention to American Indian languages (cf. the bibliography in the Field Manual edited by Slobin 1967).

The need for more empirical work is still felt, particularly since doubts have been expressed about where to draw the line between 'folk taxonomies' which are shared by all speakers and 'special terminologies' used only by experts in certain topic-based disciplines (↘ 4.3). The methodological apparatus for delimiting lexical fields has been considerably refined in recent

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years, and the following criteria are generally used: (1) a field must belong to the same sub-system or variety of the language, (2) the members of the field must belong to the same word-class or syntactic context, (3) the words must share at least one semantic component with one another.

2.5 Structural semantics

Now we have the main ingredients for a STRUCTURAL SEMANTICS: the suggestion that meanings of words change according to when and in what company they are used, the elaboration of the idea of lexical fields, and the technique of analysing the members of such domains in terms of semantic components or features. Again I shall have to refrain from going into the background, types and limitations of this approach (cf. Ullmann 1972), but just look at one representative example.

Fig.1 (p.31) is based on the material and analysis reported by Adrienne Lehrer (1969, 1970, 1972) who has studied 34 cooking terms in English and collected data on some of their equivalents in German, Polish, Jacaltec, Navaho, Amharic, Mandarin Chinese, and Japanese. The 14 columns and lines of the table illustrate one of several types of matrix charts that have been in use in various strands of strucutral semantics.

The members of the lexical field are arranged as numbered LEXEMES in Col.1 on the left, e.g. boil and its partial synonyms steam, stew and simmer in lines 2-5. The semantic components or features or SEMEMES appear in Columns 4-13 across the middle of the table, indicating e.g. whether 'water' or 'fat' is involved, whether the heat source is an 'open fire' or an 'oven' etc. The sememes which are common to all lexemes are the basic

conceptual nuclei or NOEMES (Cols. 2 and 3). The cover term or ARCHILEXEME cook shares the basic noemes, but is unmarked for all other sememes. Col.14 on the right defines the individual lexemes in terms of the noemes and sememes they contain.

Such charts, and any tree diagram based on them, such as Fig.6 , can be used to explain a number of concepts in traditional and current lexical studies, such as 'polysemy' or multiple meaning (cook referring to 'boiling', 'grilling', 'baking', 'frying' as well as 'preparing a meal'), 'synonymy' or identical meaning, 'antonymy' or opposite meaning, and 'tautonomy', i.e. the relationship between homonyms in different varieties of the language (poaching as a 'method of boiling eggs' or of 'stealing someone else's property'). We shall see later (↘ 4.4) that the semantic relationships of subordination and superordination are more revealing in contrastive lexicology than is similarity of meaning.

2.6 Limitations of structural semantics

There are many unsolved problems, and they have led some linguists to doubt whether a structural semantics will ever be possible (Hall 1972). One major precondition should of course be that the material one uses for one's analysis is complete. In Lehrer's data several items are missing, e.g. blanch, coddle, casserole. Other terms are difficult to squeeze into the matrix: braise should go somewhere between boil and fry, roast between fry and bake; brown is at one extreme of a cline the other end of which is burn. Also it is by no means settled where the transitions lie to other verbal cooking terms. Marginal lexemes like make, smoke and mix are mentioned in the table;

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but what about chill, baste, stuff, lard, strain, dress, salt, spice, marinate, pickle, stir, grate, mince and chop? (Some of these would be excluded on the criterion of identical syntactic behaviour.)

Many of the more interesting questions cannot be expressed in terms of simple columns and lines, e.g. the intriguing cross-relationships with names of dishes, or with cooking actors, appliances, and foods. The person responsible for cooking is a cook, the appliance can be a cooker (but only in British English), the thing cooked may also be called cooker, but only in limited cases, e.g. apple. The person responsible for boiling is not a boil, but perhaps a boiler, which is more often the name of something to do with boiling rather than a cooking appliance or the thing cooked. It works differently again in roasting, where the thing cooked is called roast X (or possibly roaster), but there is no name for the person in charge. As these are all activities that can be performed by a cook, no special designations are required for the individual agents who do the boiling, frying, grilling, etc.

All this suggests that there must be certain anomalies in the structure of the vocabulary which disturb the pretty patterns of structural analysis. Such 'holes' in the vocabulary have been called LEXICAL GAPS, especially when viewed in the light of another language's lexis. Since Berlin and Kay's definitive work on colour terms (1969) we are not as worried as we used to be about 'skewed' equivalences between the lexical patterns of different languages. What seems much more worrying to me is that we have not taken into account sufficiently the problem of language variety. Lehrer says in her discussion of cooking terms that things like UNIVERSES OF DISCOURSE, domains,

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fields and registers "... provide a useful ... intermediate level between the meaning(s) of an item in isolation and its meaning in a specific utterance in a specific speech situation," (1969, 54) but she fails herself to show where the boundaries might lie between the cooking lexemes of the general vocabulary and the cook's specialised vocabulary.

Thus we seem to need not only 'inter-lingual' comparisons of vocabulary systems, but also INTRA-LINGUAL CONFRONTATIONS of lexical fields in each system (cf. Collinson 1939, Filipec 1968, Henne 1972). Looking at our set of cooking terms again, I wonder how many of the verbs (poaching, reducing, blanching, pan-frying) can really be considered part of the so-called 'core' vocabulary known by most speakers of the language (↘4.3, 5)?

2.7 Generative semantics

Much of structural semantics up to the early 1960's, and almost all field theory and componential analysis before then, were concerned with PARADIGMATIC relationships between commutable single lexemes. Transformational-generative grammar and its off-shoot, generative semantics, has reopened the question of how much SYNTAGMATIC and distributional factors contribute to the meaning of lexical items in sequence. It is not so much the reformulation and formalisation of semantic 'markers' or 'features' (e.g. in Katz-Fodor 1963), but the complete integration of the lexical-semantic and grammatical-syntactic components which characterises this approach.

Linguists have long suspected that syntagmatic aspects of meaning exist. Porzig, in a classic article (1934), grouped

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together as 'syntaxic fields' such pairs as gehen and Füße, greifen and Hand, sehen and Auge (and presumably, if he had been concerned with cooking, kochen and Topf or braten and Pfanne). Firthian linguists in Britain did the same with the notion of 'collocation' (cf. several contributions to the Firth memorial volume edited by Bazell et al. 1966). And Leisi (1953/1971) used the idea of clause patterns to characterise objectless sentences with cook and bake (Lehrer 1969 says that object deletion is possible only for these superordinate terms, but not in sentences like She is boiling, at least not in the cooking field). Leisi called these verbs which also typically undergo object-subject transformations (Sie kocht die Suppe ⟹ Die Suppe kocht) PROCESS VERBS: they refer to actions which cause some other action or have a specific result.

Verbs like cook and boil can be shown to collocate with certain noun phrases, and these SELECTION RESTRICTIONS would be specified in the lexical component by means of syntactic and semantic features (e.g. 'animate' subject, 'edible' objects, cf. Hundsnurscher 1970).

It is no accident that most current studies in syntax and semantics concentrate on the verbal core of the sentence. This is true not only of generative grammar, but of competing theories such as dependency grammar. Helbig and Schenkel, for example, have produced a dictionary of German verb valencies (1969) - which incidentally does not list all cooking terms - ; and Engelen (1973) has successfully matched a detailed syntactic subclassification of verbs with their semantic grouping into lexical fields. These promising descriptions have, however, not been applied to the contrastive angle yet.

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Much empirical work is still to be done, and the disregard for language variety and situational context which has been criticised in pregenerative studies equally applies here, especially when observation of actual usage is neglected in favour of speculation about language-independent universals. This is nowhere as obvious as in lexical work, which is often no more than an elegant restatement of what has been documented in the genral language dictionaries for decades, such as the often-quoted example of Katz's bachelor. This is why we must now turn to the subject of dictionaries.

3 Contrastive lexical studies in applied linguistics

There are several traditions within applied linguistics which we can utilise for contrastive lexical analysis, notably lexicography, translation, foreign language learning, and the study of bilingualism.

3.1 General lexicography

The practice of dictionary-making for the major European languages goes back well before Samuel Johnson's efforts to record and stabilise English usage. Since the famous conference on the linguistic aspects of lexicography at Indiana University (reported in Householder-Saporta 1962) we have seen the publication of a growing number of informed introductions and manuals (cf. surveys by Hanne 1972, Quemada 1972). The upsurge of interest in the linguistic aspects of lexicography will undoubtedly lead to improvements in the quality of our dictionaries.

Let us look briefly at a dictionary to see how meanings of certain LEXICAL ITEMS are discriminated and related to other lexical items. The Penguin English Dictionary (Garmonsway 1965),

now eight years old, in fact manages to represent our lexical field of 'cooking' reasonably well. It correctly states that verbs like cook, boil and bake can be both transitive and intransitive, and it shows that cook is the cover term by including it in the definition of its subordinate lexemes boil, bake, roast, and fry. Mr. Garmonsway and his sources are less consistent in distinguishing semantic features: they mention the requirement of 'heating' in most relevant entries, name appliances such as stove and utensils such as pan in some cases, and exemplify the thing cooked only rarely, e.g. eggs under boil. But a general language dictionary also has to indicate her synonyms, homonyms and antonyms. Again the intuitive competence of the editors, backed up by the information codified in generations of general and specialised glossaries, works remarkably well.

The same is true of a couple of German dictionaries which I have checked, e.g. Wahrig (1966/72) which incorporates data from bilingual dictionaries. I was, however, somewhat disappointed by the coverage of these terms in so-called dictionaries of synonyms. Both Roget-Dutch (1852/1962/1966) and its German counterpart, Wehrle-Eggers (1881/1961/1968) which give a long and rather poorly sub-divided list of cooking words under entry No.301 (298 in the German), together with words relating to eating, drinking and types of foods, and a number of practical guides such as Unser Wortschatz by Geffert et al. (1972) are unsatisfactory, considering their declared aim of supplying and discriminating between words of similar meaning. To give these compilations their due, they developed the idea of arranging words by conceptual categories well before the lexical field theory entered linguistic semantics (¶ 2.3).

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3.2 Bilingual dictionaries

The aim of bilingual lexicography, viz. "... to co-ordinate with the lexical units of one language those lexical units of another language which are equivalent in their lexical meaning" (Zgusta et al. 1971, 294) is fraught with difficulties because of the well-known phenomenon of ANISOMORPHISM between the vocabularies of the source and target languages. This problem also accounts for many of the shortcomings we find in bilingual dictionaries.

Looking at adjectives such as modest in English and einfach in German and their translational equivalents, Berndt (1969) criticises German-English and English-German dictionaries for 'insufficient meaning discrimination'. At least one publication I have come across (Wörterbuch als Fehlerquelle 1970) goes even further in its wholesale condemnation of the major bilingual dictionaries by generalising obvious mistakes in the treatment of a dozen basic verbs and their negative effect on the work of the German student learning English.

We can easily check whether such criticism is justified by submitting one of the bilingual dictionaries (Langenscheidt's Concise, Messinger 1959, which incidentally is not listed in the critical review mentioned above) to a search for words in our lexical field of 'cooking'.

Let us look at the English-German volume to see which translation equivalents it provides for the members of our lexical set. With one or two exceptions (such as reduce in its cooking sense), all relevant words are covered, and both the transitive and intransitive uses are indicated (with the perhaps justifiable exception of poach and braise, which are designated as vt only). In most cases, equivalence is specified

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in detail, either by naming the foods that normally collocate, e.g. roast: (Fleisch) braten etc., (Kaffee) rösten, or by mentioning the appliance needed, e.g. bake: im (Back-) Ofen braten. But inconsistencies abound: under grill we find (Fleisch etc.) grillen, auf dem Rost braten, under broil we find auf dem Rost braten, grillen. Both fry and bake are related to both braten and backen: while fry is rendered as braten and (in der Pfanne) backen, bake has backen and (im Ofen) braten. Which is which?

The German-English volume confounds this question even more by equating braten with roast and (im Ofen)bake and (in der Pfanne) fry, and backen with bake and (in der Pfanne) fry. The German-English volume does demonstrate the wider semantic range of kochen and its use as a superordinate lexeme for all types of 'cooking' and as the cover term for 'boil', by specifying the 'thing cooked' and the 'method used', e.g. (Gemüse, Fleisch): cook, (Flüssiges): boil, (Eier in siedendem Wasser): poach, gelinde: simmer.

We see that bilingual dictionaries (at least some of the better ones) have come a long way in coverage and meaning discrimination, although we may still encounter the undifferentiated list-type entry boil: kochen, sieden, wallen, kochen (lassen), zum Kochen bringen, ab-, einkochen etc. Clearly the kind of semantic analysis we sketched above with regard to one lexical field can point out shortcomings in bilingual reference works (↘ 4.2-4.4).

3.3 Translation

Another area in which contrastive work is even more essential, as it forms the backbone of a professional activity,

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is that of translating and interpreting. Linguists are often unaware of the wealth of constructive observation which has come from practising langage mediators and their training establishments, especially the collections of hints on how to avoid lexical and stylistic howlers in interlinguistic operations.

Once such handbook of PITFALLS which preceded our current interest in 'error analysis' by about two decades is Paulovsky's Errors in English (1949). In Fig.2 I have reproduced two entries, not for their charm and schoolmasterly tone, but for their relevance to our topic and the empirical spirit they effuse.

Interesting parallels emerge between the fields of lexicography and translation. The interaction with linguistics and semantics has come to both rather late, but with a vengeance since the early 1960's. In addition to the question "What can linguistic theory do for translation?" some linguists have begun to ask what translation can do for linguistics, especially contrastive analysis (cf. Kirkwood 1966, Ivir 1970).

With reference to field theory we must mention Osswald's contrastive study (1970) of the word field itself and its neighbouring words country, landscape, etc. His data came from over 30 literary and non-fictional texts and their translations in French, German, English, Italian and Spanish. This method of MULTILATERAL COMPARISON OF TRANSLATIONS was first systematically exploited by Mario Wandruszka at Tübingen (now at Salzburg), and could bring further insights into grammatical and lexical differences between pairs of languages if used with care.

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3.4 Foreign language learning

We now come to the most well-studied, but least settled field in which contrastive studies of vocabulary structure play an important part. Apart from a few forerunners the most astute advocate of the contrastive approach in foreign language learning was Robert Lado, who combined his considerable experience in teaching English to speakers of other languages with the conviction that structural linguistics can be used in the preparation of more effective teaching materials on the basis of a 'scientific' parallel description of the native language of the learner and the target language. His famous book Linguistics across Cultures (1957) features a prominent, but much neglected chapter on "How to compare two vocabulary systems", distinguishing three aspects of the word: its 'form', 'meaning' and 'distribution', with many examples and supplementary remarks on 'connotation' and 'frequency'.

It is the fate of all great classics that they are more often quoted or ignored than read. But at least the idea that applied linguistics can help the language teacher by accounting for 'interference' has sparked off a series of contrastive studies in connection with bilingualism (↘ 3.5) and foreign language teaching (↘ 4.1).

Prompted by the new ideas in applied linguistics, which promised to offer a framework for quantifying learning difficulties, several textbooks and articles since about 1960 have stressed the need for systematic contrastive vocabulary presentation (Mackey 1965, Wächtler 1969). The COMPARATIVE STYLISTICS guides by Vinay-Darbelnet(1958/68) and Malblanc (1961/1968) also draw on lexicographical and translation expertise of their authors in English, French and German (↘ 5).

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Some authors have tried to measure the causes and effects of LEXICAL INTERFERENCE in language teaching. Nemser and Vincenz (1972), for example, claim that language learners develop 'approximate systems' intermediate between source and target languages and that lexical interference is largely unpredictable, and support their hypothesis with examples from English and Romanian. In Fig.3 I have tried to adapt this procedure to the most troublesome word in our lexical field of 'cooking' in English and German.

Such a contrastive representation of interference explains quite forcibly the difficulties mentioned above in connection with bilingual lexicography, translating and language learning. And the problem of lexical equivalence now seems both clearer and more complicated: clearer, because the table allows us to predict complete agreement (e.g. kochen as cover term) and full conflict (e.g. kochen in collocation with Kaffee and Tee, while the English equivalent make is 'borrowed' from outside the field).

But the problem is also more complicated than we might have thought, because the individual language learner, in groping towards his own 'approximation' of the lexical structure of the target language, will make all kinds of analogies and generalisations which are not in full accord with either his native or the foreign language system. No wonder then that bilingual dictionaries contain the inconsistencies that we found in Langenscheidt, no wonder that translators commit the errors that are quoted by Paulovsky, no wonder that observers of foreign language students tell us that ERROR ANALYSIS can and should be used to supplement the predictions of contrastive analysis (cf. Nickel 1972).

3.5 Bilingualism

Researchers into bilingualism have long been aware that interference occurs when a speaker is competent in more than one language. Weinreich (1953/1963), the classic work on this subject, in fact distinguished interference on the 'phonic', 'grammatical' and 'lexical' levels, and offered valuable insights into vocabulary contact, based on many actual examples, chiefly from Yiddish.

There have been a few detailed studies since then of TRANSFER phenomena, their causes, types and effects in relation to such general notions as linguistic 'contact', 'borrowing' and the 'Weltbild' (cf. Selinker 1966, Clyne 1967, Juhász 1970). We must wait, however, for detailed findings in this field which may be more directly relevant to contrastive lexicology.

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4 Contrastive lexicology German/English

4.1 Contrastive linguistic analysis

We have now gathered together the various strands of descriptive and applied linguistics which have helped to make CONTRASTIVE ANALYSIS proper a viable field of enquiry. The ground had been partly prepared by theoretical linguists (Trnka , Bally, Hockett) and by practicioners in bilingual lexicography, translation, bilingualism and second language teaching, but it was not until contrastive linguistics came to be institutionalised under the patronage of the Center for Applied Linguistics and the publication of the well-known Contrastive Studies Series (e.g. Kufner 1962 for German) that we can speak of an established movement which then spread to other parts of the world, where it has also been labelled 'differential' (in the Romance area) or 'confrontative' (Eastern Europe) analysis.

Progress and principles of work are summarised in the introductory textbook by DiPietro (1971), which also contains chapters on "Semantic projection" and "The structure of lexicon". DiPietro takes Lado's early manifesto (1957) a stage further in the light of recent linguistic theory, e.g. by a componential-generative study of 'meat' and 'flesh' in English as a basis for statements about equivalents in other languages.

It is surprising to note that neither Lado nor DiPietro mention Leisi's book Der Wortinhalt which was published in 1953 and has since seen three more editions and revisions. At a time when the idea of a synchronic comparison of language pairs for pedagogical purposes was being hesitantly tried at the levels of phonology and grammar, Leisi and his research students

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at Zürich began to offer a fairly comprehensive picture of German and English lexical structure. It is true that Leisi's sociological theory of 'usage' and 'hypostatis' has been criticised (Reichmann 1969), and that his generalisations are based on concrete simplex nouns, adjectives and verbs only, but he does put about 750 German and 450 English lexical items in their semantic context, which is more than can be said for any other contribution to systematic contrastive lexicology published so far.

4.2 Lexical contrasts German/English

Let us start with Leisi's analysis of cooking verbs. I have already mentioned (↑ 2.7) that he classifies them syntactically as process verbs. Even more interesting is Leisi's hypothesis that German distinguishes the different types of cooking by the 'substance' that is treated rather than by the 'means' through which this is done: backen is used for doughy matter, kochen for liquids (or things immersed in liquid), sieden for liquids only, schmoren for fatty-semiwatery substances. In English, on the other hand, the method of heating seems to be more important than the thing cooked. This would explain why bake typically collocates with oven and fry with open fire, and why a baked apple cannot be a gebackener Apfel, unless it is wrapped in batter or pastry.

In Fig.4 I have tried to plot these conceptualisations along two DIMENSIONS, 'substance' and 'method'. Such a notional diagram may be considered a further improvement over the simple list of dictionary and translation equivalents (↑ 3.2, 3.3) or of semantic interference phenomena in language learning (↑3.4).

But it will need to be modified in the light of further evidence (↓ 4.3) from native informants to assess changes in space and time and to determine whether the pretty patterns may have to be corrected yet again. Just one factor that has a bearing on our lexical field: with more mechanical aids in the kitchen, traditional terms may disappear. Most modern recipes specify heat values along the temperature scales of electric and gas stoves, which may make 'method' predominate over 'substance' and lead to a preference for general cover terms like cook and make over specialised subordinate ones.

4.3 Towards contrasting whole vocabularies?

The problem we face now is whether the lexical contrasts which we found in the specialised literature and modified on the basis of interviews with native informants for one small area of the vocabulary can be extended to the whole thesaurus.

There are two extreme positions in this respect: the 'universalist' and the 'particularist' view. The history of 20th century structural linguistics is co-terminous with the search for ever more general units and features that can be abstracted from the continuum of speech, in the hope of finding elements that will characterise all languages. This trend has produced, as we have seen, the theory of the lexical field, componential analysis, and various forms of structural and generative semantic feature specifications. The particularist approach, on the other hand, claims that each language has its own way of structuring its communicative units and their configurations, and that interlinguistic comparisons are limited by this RELATIVITY (↑ 2.1). Most descriptive studies of

portions of the lexicon can be assigned to either view. However, I think that both groups have their contribution to make, and there is no reason why their respective advantages should not be combined.

In our search for any TAXONOMIES that might be relevant in classifying the vocabulary into lexical hierarchies we turn of necessity to previous studies of selected lexical fields in German and English. We see that not much notice was taken of Trier and Collitz until the 1950's, with the possible exception of Reuning (1941) whose contrastive analysis of joy and Freude in English and German is quoted frequently, but was not obtainable.

The most well-studied fields of nouns are kinship terms, but apart from the limited Osswald (1970) and the fragmentary Leisi (1953/1971) truly contrastive lexical studies are rare. In the verbal group, 'verbs of motion', 'verba dicendi', have, and be have attracted most attention of linguists, probably because of their frequency and value in determining grammatical patterns. Among the adjectives, colour terms are a perennial topic (Berlin-Kay 1969), but again very little contrastive analysis has been done. Hundsnurscher's introduction to semantics (1970) has adapted the results of several detailed monographs (e.g. Bierwisch 1967/1970 on adjectives, and Bendix 1966 on have and the 'part-of' relation) to German.

Few works have tried to integrate the idea of a structural THESAURUS into a comprehensive description of the vocabulary. We have already mentioned monolingual and multilingual dictionaries in this context, especially those listing lexemes by conceptual synonym groups rather than by alphabet (cf. Dornseiff 1933-34/1970, Schmidt-Hidding 1951, Blass-Friederich 1957/1965).

If we try to relate our lexical field of 'cooking' to other studies, we are almost led to give up in despair. There isn't a single publication that can link up with ours, except perhaps Seiler's correlation of eating and food lexemes (1967), which in any case is more concerned with Tzeltal (a Central American language) than with German. There is no analysis of nouns referring to cooking 'implements' or 'substances' that can be cooked, no study of verbs relating to activities of 'treating' and 'serving' foods, no discussion of relevant adjectives from 'hot' to 'cold', from 'raw' to 'done'.

On the other hand the diagrams of Figs.4 and 6 illustrate that the two languages and cultures are close enough to allow matching translational equivalence. These types of notation are also better suited than the rigid matrix of Fig.1 to show hierarchical relationships along several RANKS as well as lexical gaps and overlaps.

How are we to classify lexical hierarchies? Among the criteria that have been put forward are (1) etymology, (2) morphology, (3) terminology, and (4) several types of semantic relationship (↓ 4.4).

That ETYMOLOGY can be useful if properly presented is proved by the multilingual guide to 'selected synonyms' in the major Indo-European languages by Buck (1949) which lists cooking terms under Sections 5.21 to 5.24. But it can be criticised for its rather arbitrary grouping of conceptual categories, a disadvantage it shares with many dictionaries which deliberately choose to arrange the vocabulary by notional synonym categories rather than by alphabetical principles (↑2.2, 3.1, 3.2).

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Structural linguists often side-stepped these issues by concentrating on the expression plane at the expense of the content plane. Traditional MORPHOLOGY paid much attention to the compositional and derivational means by which lexemes are formed from simpler 'building blocks' (Marchand 1960/1969, Menzerath 1954), but provided very little information on the question of whether corresponding lexical items in pairs of different languages have similar morphemic shape or not. We have already looked at several examples (cook/kochen, modest/einfach) and noted that their internal structure may be quite different. This is true also of the arrangement of 'word families' which are the result of 'conversions' between word classes, e.g. cook (v) - cook (n) - cooker - cooking vs. kochen (v) - Koch/Köchin - Kocher - Küche etc. (Iskos-Lenkova 1963/1970). If we go beyond Leisi's brief of simplex lexemes, we ought to account for such diversities as palm/Handfläche or palm-tree/Palme, reasonable/zumutbar, or type-writer/Schreibmaschine.

The conceptual and the morphological angle meet in a discipline that has been largely ignored by linguists, viz. the study of the taxonomic structure of specialised TERMINOLOGY. I have already remarked (↖ 2.6) that it is not easy to establish clear boundaries between the so-called 'general core' of the vocabulary and the lexical items used in specialised universes of discourse. Some authors have stressed that the lexemic structures of such nomenclatures may be highly standardised, but there is no agreement on how much autonomy can be claimed for the vocabulary of a scientific discipline. My own work on linguistic terminology has led me to believe that lexemes

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used as technical terms do not give up their 'ordinary' range of meaning, but have one or more semantic components or features added.

With the aid of Fig.5 (which displays in tree-diagram form the semantic features taken from a matrix-type table) we can make three tentative observations: (1) The lexical coinages of a technical register usually rest firmly on the morphological and semantic potential of the general thesaurus. In 'pipe fittings' this is well illustrated by terms like Knie/elbow and T-Stück/tee. (2) The lexical items and distinctions reflect the needs of the subject and its practicioners. It is characteristic that in the field of pipe fittings at least 7 British Standards and one international recommendation have been published to codify the terminology. (3) The more specialised a topic-based subject, the more internationally and interlinguistically comparable its lexemic structure becomes. Fig.5 demonstrates quite clearly the close match of terms in German and English, e.g. Muffe/socket, Nippel/nipple, Reduktion/reducing fitting, Flansch/flange.

4.4 Some basic lexico-semantic relationships

More promising than etymology, morphology and terminology have been in providing partial solutions to the problem of contrasting lexical structures may be various types of SEMANTICS.

The most well-known lexical hierarchy is that of kinship terms. It shows man's intimate social relationships to his family and thus points to wider cultural differences. The 'family tree' in fact constitutes an institutionalised diagram

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of such relationships. Similar tree graphs can be and have been designed for many other lexical fields, e.g. that of pipe fittings (Fig.5), of cooking terms (Fig.6), of domestic animals such as horses, of plants, of means of transport, of furniture, etc.

Let us explore and classify the lexico-semantic relationships involved. Depending on the rank of the relation and the nature of its members, we may distinguish 4 pairs: 'synonymy' and 'heteronymy', 'hyperonymy' and 'hyponymy', 'syn-hyponymy' and 'dia-hyponymy', and 'antonymy' and 'complementarity'.

SYNONYMS are reputedly very rare. They are characterised as members of a lexical field which share all semantic features or sememes within one dimension and are substitutable in the same context. In the cooking field two pairs of terms in English qualify: deep-fry/French-fry and shallow-fry/pan-fry. An example of synonyms in kinship terminology are the German lexemes Frau and Gattin. In the equine field German has the synonymous pair Füllen and Fohlen, while English has the one term foal which can be specified by sex into colt and filly.

HETERONYMS are near-synonyms whose use depends on dialectal or stylistic preferences. Heteronyms in cooking are broil and grill in English, and in German kinship terminology Gattin and Gemahlin.

HYPERONYMS are members of a lexical field which stand in a superordinate relation to other members of the same field. The superordinate term or hyperonym is said to cover or include the subordinate ones, e.g. when the 'archilexeme' cook can stand for any of the other cooking verbs. (This is traditionally called 'polysemy'.) Lyons's term 'inclusion' is unfortunate because it

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is the general semantic feature of the hyperonym that is included in the subordinate terms, not vice versa. Thus we know from Figs.1 and 6 that the characteristic sememe 'heat with water' in boil is included in simmer, steam, poach and stew, and in Fig.5 the basic lexeme Verbindungsstück is the hyperonym of both the 'straight' fittings like Muffe and Nippel and the 'curved' ones like Bogen. Hyperonyms in kinship terminology are parents (the singular sounds more usual in English than in German) and siblings (less used than its counterpart Geschwister). Women's Lib anthropologists have been searching for a suitable hyperonym for English man, which sounds more male-dominated than Mensch. It is a semantic universal not often appreciated that hyperonyms can be used as synonyms of their subordinates, e.g. Frau for verheiratete Frau or Gattin or Gemahlin, or Pferd for weißes Pferd or Schimmel.

HYPONYMS are the subordinate members in a lexical field, which have at least one sememe more than their hyperonym. The relationships of hyperonomy and hyponymy can be appealed to most usefully to explain contrasts in lexical structure of particular pairs of languages. Fig.6 illustrates that $boil_1$ which is one of the hyponyms of $cook_2$ can in turn act as a hyperonym of simmer and $boil_2$, defined respectively as 'gentle' and 'vigorous' heating with water, and $boil_2$ can be further subdivided into at least 3 hyponyms: steam, poach, and stew. In German, on the other hand, $kochen_3$ is the hyponym of $kochen_2$ and thus the appropriate equivalent of $boil_1$, but it is not as elaborately subdivided as its English counterpart. As far as I can make out, neither English nor German have a hyperonym for the hyponyms grill and toast with the meaning of S_4 'heating on

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the open fire'. Nor is there a hyperonym in Fig.5 for the hyponyms Muffe, Nippel etc.

Relationships between hyponyms at the same rank ('co-hyponyms' or'homoionyms' so-called) can be further classified by number and types of semantic features shared. Synonyms share exactly the same sememes; co-hyponyms which do not share all sememes may be part of one or more semantic dimensions.

SYN-HYPONYMS are members of a lexical field at the same rank of hierarchy which share several semantic features irrespective of dimension. Examples of syn-hyponyms in cooking are boil, roast, fry and bake, in the horse hierarchy mare, chestnut, gelding and foal.

DIA-HYPONYMS are members of a lexical field at the same rank of hierarchy sharing semantic features only within the same dimension, which makes them incompatible with one another (also called 'inconyms' because of this). One dia-hyponym explicitly excludes or contradicts all others, e.g. grill, a type of cooking on open fire differing from toast by substance, or stew which differs from other types of boiling (like poach and steam) by substance, or dun which differs from other types of horses (like grey and chestnut) by colour, or Flansch which differs from other types of removable joints (like Holländer and Langgewinde) by method of linking.

The last pair of lexico-semantic relationships expresses polar opposition at the same, non-hierarchical rank.

ANTONYMS are (usually dual) members of a non-hierarchical lexical field which contain an element of negation in addition to sharing all other features. The most typical antonyms are adjectives like strong and weak, big and small, hot and cold which express a property relative to a norm.

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SYN-PLERONYMS or 'complenyms' are paired members of a non-hierarchical field which negate each other absolutely, e.g. rare and done, single and married, brother and sister, mare and stallion. In contrast to antonyms, syn-pleronyms are not comparable or gradable.

Of all these relations, the hierarchical ones of hyperonymy and hyponymy seem to be more crucial in specifying lexical contrasts between languages than the single-rank ones of synonymy and antonymy. This is where the gaps, skewed relations and interferences occur.

5 Practical implications

In the introduction we mentioned the problem of 'false friends' in foreign language learning (cf. also Lado 1957 who calls them 'deceptive cognates'). Of all the difficulties in acquiring a working vocabulary in a foreign language, the superficial similarity but semantic divergence of lexical counterparts like Gymnasium/gymnasium, eventuell/eventually, starten/start and überreichen/overreach has been the subject of frequent discussions among practising language teachers, e.g. by Perl & Winter (1972) who regard the above pairs as examples of 4 different classes of false friends. I believe that the preceding pages are relevant in this and many other, wider issues of vocabulary learning, such as the selection, grading and presentation of lexical material in taught courses.

The student of a foreign language has to master the associations which words contract with other words. But these associations are of various kinds which are in turn linked

with one another. Suggestions for improvement in the teaching situation made by linguists often tend to stress one at the expense of all others, e.g. when Rheinfelder (1926) advocated the use of comparative etymology in the teaching of lexical items, Ogden (1940/1957) suggested a limited 'Basic' vocabulary, and several pseudo-statistical efforts from the Conference on Vocabulary Selection in the early 1930's to CREDIF claimed that frequency was the most efficient criterion for processing vocabulary.

The very idea of a LEXICAL CORE or minimum vocabulary (Eaton 1940/1961, Öhler 1966) has been attractive for some time, but there is no agreement on its nature and extent. Both the 'general' and any 'specialised' vocabularies can be classified along several dimensions, by use from 'frequent' to 'rare', by morphology from 'simple' to 'compound', by etymology from 'original' to 'derived', by range of application from 'wide' to 'narrow' etc. Occasional warnings have been sounded about one-sided procedures, e.g. when Buchbinder (1971) suggests syntactic factors in selecting lexical material, or when Hadlich (1965) criticises the deliberate juxtaposition of 'problem pairs' of the leave - salir/dejar type in translation exercises and argues that these would cease to be problematic if presented each in their separate contexts. Several East German articles are concerned with what they call 'semanticising' lexical items by presenting and drilling them in appropriate situations (cf. Hoffmann et al. 1973). The question of situational variables is of course particularly important in the teaching of technical registers or 'languages for special purposes', but hardly any contrastive lexical work has been carried out.

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The remarks made above (↖ 4.4) are especially significant in the treatment of various degrees of 'skewed' equivalence, which can reach from straightforward 1 : 1 counterparts like grill/grillen (etymological, morphological and semantic doublets) through different distributions of the counterparts (kochen / boil, cook), to complete lack of equivalents, e.g. simmer which has to be paraphrased in German, or awkward, idiomatic phrases such as That was a clean sweep/Das ging glatt. Perfect foreign-language competence without any interference can only be achieved by complete immersion, or by deliberate contrastive work with the aid of adequate teaching material (↖ 3.4, cf. also Carroll 1963).

One such aid is the bilingual dictionary whose reliability is often in doubt (Berndt 1969, Wörterbuch 1970). Again I hope to have shown that contrastive lexical analysis can provide a technique of improving the description of selected portions of the vocabulary (↖ 3.2, 4.2, 4.4).

Refined contrastive analysis should also benefit translation, both as a professional activity and a teaching device, when the availability and accuracy of matching lexemes are at stake (↖ 3.3).

I hope to have made out a case for contrastive lexicology as a pragmatic and eclectic field of enquiry in which theoretical, descriptive and applied linguistics can participate for the benefit of everyone.

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FIGURE 1

A lexical field in general vocabulary

(after Lehrer 1969)

Lexemes \ Semes	Conceptual nucleus		Semantic Dimensions: Ingredients		Heat Source		Intensity		Substance				Definition
	N_1 preparing food	N_2 by heating	S_1 water	S_2 fat	S_3 oven	S_4 open fire	S_5 gentle	S_6 vigorous	S_7 liquid	S_8 solid	S_9 bread	S_{10} meat	
1 cook	+	+	0	0	0	0	0	0	0	0	0	0	(archilexeme) N_1N_2
2 boil	+	+	+	-	0	0	-	+	0	0	0	0	$N_1N_2S_1S_6$
3 steam	+	+	+	-	0	0	-	+	-	+	0	0	$N_1N_2S_1S_6S_8$
4 stew	+	+	+	-	0	0	-	+	+	+	0	0	$N_1N_2S_1S_6S_7S_8$
5 simmer	+	+	+	-	0	0	+	-	+	+	0	0	$N_1N_2S_1S_5S_7S_8$
6 fry	+	+	-	+	-	+	0	0	-	+	0	0	$N_1N_2S_2S_4S_8$
7 grill	+	+	-	-	-	+	0	0	-	+	-	+	$N_1N_2S_4S_8S_{10}$
8 toast	+	+	-	-	-	+	0	0	-	+	-	+	$N_1N_2S_4S_8S_9$
9 bake	+	+	0	0	+	-	0	0	-	+	0	0	$N_1N_2S_3S_8$
10 brown	+	+	0	0	+	+	+	-	-	+	0	0	$N_1N_2S_3S_4S_5S_8$
11 make	+	+	0	0	0	0	0	0	+	-	0	0	$N_1N_2S_7$
12 smoke	-	+	0	0	-	+	0	0	-	+	0	+	$N_2S_4S_8S_{10}$
13 mix	+	-	0	0	0	0	0	0	+	+	0	0	$N_1 S_7S_8$
Columns: 1	2	3	4	5	6	7	8	9	10	11	12	13	14

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FIGURE 2

Lexical pitfalls in translation

(Paulovsky 1949)

K O C H E N

DO NOT SAY:	SAY:
The water is cooking. (Das Wasser kocht.)	The water is boiling.
I cook myself. (Ich koche selbst.)	I do my own cooking.
She cooks well. (Sie kocht gut.)	She is a good cook.
Cooking book. (Kochbuch.)	Cookery book, U.S.: cook book.
Cooked fruit. (Gekochtes= gedünstetes Obst.)	Stewed fruit.
He is cooking with rage. (Er kocht vor Wut.)	He is boiling with rage.

Sieden - to boil. Speisen (durch Hitze) zubereiten - to cook. Boiled eggs, b.vegetables. To bring the water to the boil. K.-(Siede-)punkt - boiling point. K.-salz - kitchen (common, table) salt.K.-herd - kitchen-range. K.-kiste - hay-box. K.-kunst - cookery, culinary art. Cooking pears, c.apples, c.utensils. Note: Langsam, gelinde, weiterkochen, wallen - to simmer. Proverbs: Hunger is the best sauce. Too many cooks spoil the broth.

* * * *

B R A T E N

DO NOT SAY:	SAY:
Pig roast. (Schweinebraten.)	Roast pork.
Roasted apples. (Bratäpfel.)	Baked apples.
Roast sausage, roast potatoes. (Bratwurst, Bratkartoffel.)	Fried sausage, fried potatoes.

The word is a trap to many, especially to the mere male. Distinguish: der Braten - roast meat, e.g. roast beef, r.veal, r.mutton, r.goose, r.chicken, r.turkey, etc. as opposed to joint = Bratenkeule, Fleisch in einem Stück. Verbs: to roast, the general term; auf dem Spieß b. - to roast on a spit; auf dem Rost b. - to grill, to broil; in der Bratpfanne (frying-pan) b. - to fry: fried eggs, potatoes; im Ofen b. - to bake; in oder an der Sonne b. - to be scorched, to bake; other applications: nicht ganz durchgebraten, ungar. - underdone; gut durchgebraten - well done; zu viel gebraten - overdone; den Braten begießen - to baste the meat. Den B. spicken - to lard. Compounds: Bratensaft - gravy; B.-fett - dripping; B.-spicker - larding-needle, larding-pin.

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FIGURE 3

Semantic interference in foreign language learning

(after Nemser-Vincenz 1972)

Lexeme German	Meaning	Lexemes English			Interference
kochen	(sememes)	cook	boil	stew	+ predicted agreement - predicted conflict ? indeterminacy
+	'heat food with water'	+	+	+	+
+	(a) meat, vegetables	+	+	+	+
+	(b) eggs	+	+	-	?
+	(c) fruit	+	+	+	+
+	(d) water, milk	-	+	-	?
+	(e) soup	+	+	-	?
+	(f) coffee	-	+	-	?
+	(g) tea	-	-	-	-
+	'heat non-edible liquids'	-	+	-	?
+	(a) bubble, foam	-	+	-	?
+	(b) glue, dye	-	+	-	?
+	'be upset'	-	+	-	?

FIGURE 4

Conceptual structures in a lexical field

(after Leisi 1953/1971)

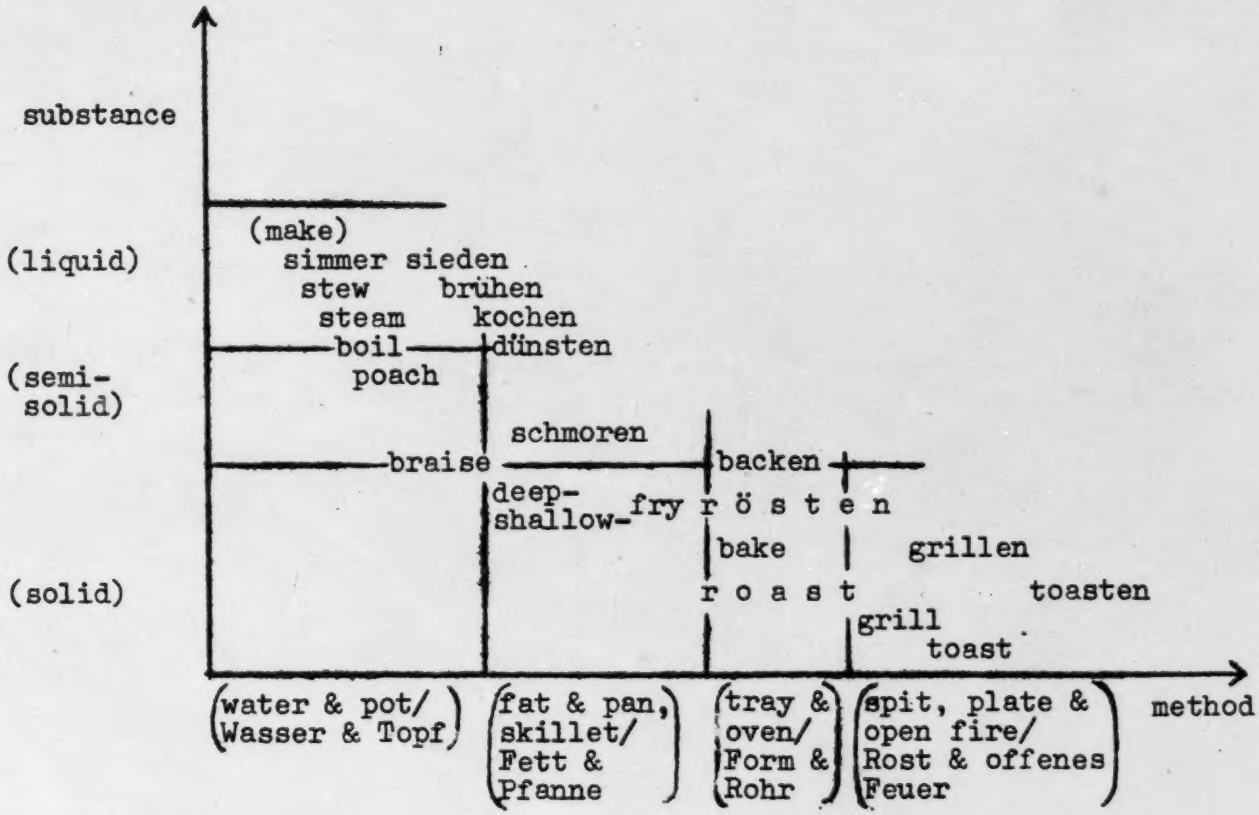

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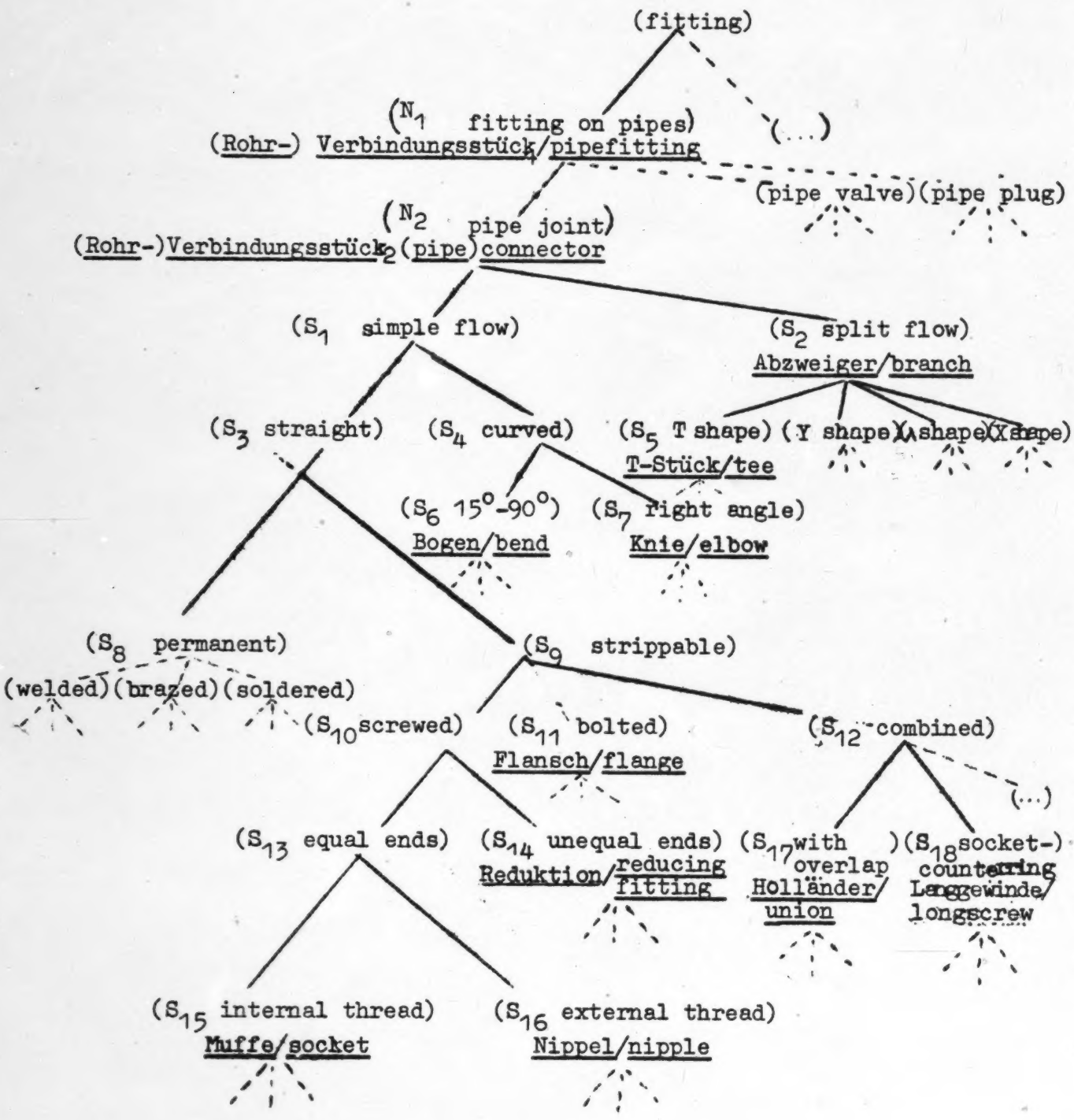
FIGURE 5

A lexical field in a technical register



Further distinctions are made by type, nature and function of pipes joined.

FIGURE 6

Hierarchical taxonomies in English/German lexis

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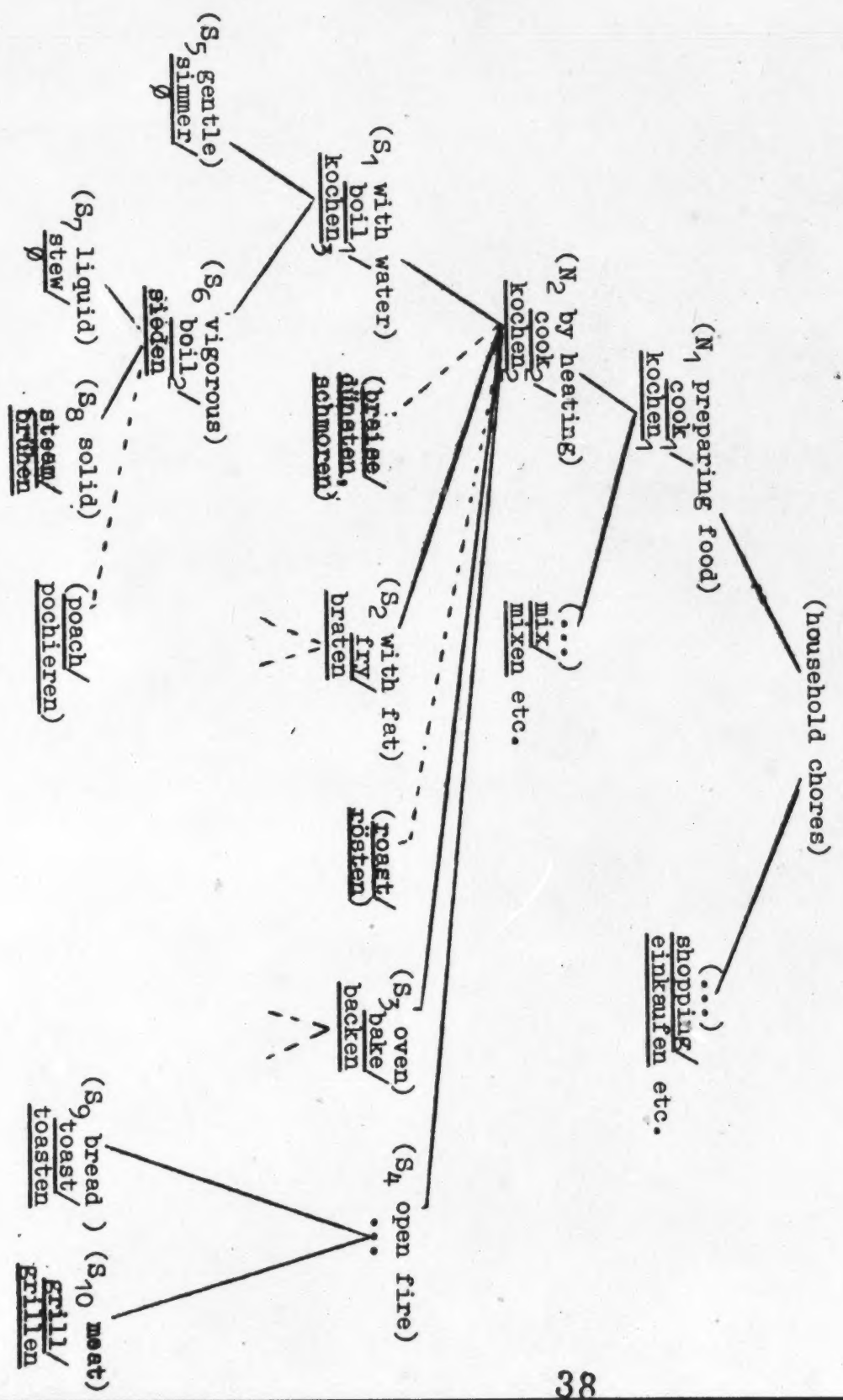

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